


Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

10/532239
PCT/JP2003/013718


(PCT Article 36 and Rule 70)

Applicant's or agent's file reference HM-F347PCT	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/JP2003/013718	International filing date (day/month/year) 27 October 2003 (27.10.2003)	Priority date (day/month/year) 25 October 2002 (25.10.2002)
International Patent Classification (IPC) or national classification and IPC H03H 7/01, 7/46, 7/42, H01P 1/15, H04B 1/44		
Applicant HITACHI METALS, LTD.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☒ (sent to the applicant and to the International Bureau) a total of 33 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:
 - ☒ Box No. I Basis of the report
 - ☐ Box No. II Priority
 - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - ☐ Box No. IV Lack of unity of invention
 - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - ☐ Box No. VI Certain documents cited
 - ☐ Box No. VII Certain defects in the international application
 - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 17 August 2004 (17.08.2004)	Date of completion of this report 01 April 2005 (01.04.2005)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

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International application No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

- ☐ The international application as originally filed/furnished
- ☒ the description:
- pages _____ 1,3,4,10,13,14,27 _____, as originally filed/furnished
- pages* 2,5,6,6/1,7,7/1,8,8/1,9,9/1,11,12,12/1,15-19,19/1,20-26 received by this Authority on 17 August 2004 (17.08.2004)
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ 1-8 _____, as originally filed/furnished
- pages* _____, as amended (together with any statement) under Article 19
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages _____ 1-4,12 _____, as originally filed/furnished
- pages* 5-11,13,14-20 received by this Authority on 17 August 2004 (17.08.2004)
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to sequence listing (specify): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to sequence listing (specify): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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International application No.

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-8	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-8	NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Document 1: JP, 2001-60839, A (Murata Mfg. Co., Ltd.), 6 March, 2001 (06.03.01), Fig. 1, paragraph [0019], & EP, 1077528, A2

Document 2: JP, 10-79601, A (NEC Corp.), 24 March, 1998 (24.03.98), Figs. 1, 3 and 7, & GB, 2316820, A, & AU, 9736746, A, & US, 5883553, A, & KR, 98024259, A

Document 3: JP, 2002-171187, A (Toshiba Corp.), 14 June, 2002 (14.06.02), Fig. 6, paragraph [0003], & US, 2002/0067226, A1, & EP, 1213835, A1

Document 4: JP, 8-321738, A (Matsushita Electric Industrial Co., Ltd.), 3 December, 1996 (03.12.96), full text, all drawings, & EP, 0744831, A2, & US, 5926466, A

Document 5: JP, 51-7793, Y1 (The Furukawa Electric Co., Ltd.), 2 March, 1976 (02.03.76), full text, all drawings (Family: none)

Document 6: JP, 11-144961, A (NGK Spark Plug Co., Ltd.), 28 May, 1999 (28.05.99), paragraphs [0014] and [0029] (Family: none)

Document 7: JP, 2002-314371, A (Murata Mfg. Co., Ltd.), 25 October, 2002 (25.10.02), full text, all drawings, & EP, 1251638, A2, & US, 2002/0167378, A1, & KR, 2002081147, A, & CN, 1381951, A

Document 8: JP, 2003-283296, A (TDK Corp.), 3 October, 2003 (03.10.03), full text, all drawings (Family: none)

Document 9: JP, 2002-304178, A (Agilent Technologies, Inc.), 18 October, 2002 (18.10.02), full text, all drawings, & US, 2002/0109563, A1, & EP, 1233511, A2

Document 10: JP, 2002-280926, A (Hitachi Metals, Ltd.), 27 September, 2002 (27.09.02), Figs. 4 and 5 (Family: none)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: V

The subject matters of claims 1, 2 and 4 do not appear to involve an inventive step in view of documents 1-4 cited in the ISR.

Document 1 describes a balanced-unbalanced type filter.

Furthermore, document 2 or 4 describes (1) a multi-band filter module consisting of (a) a first high frequency switch, (b) a first band pass filter, (c) a second band pass filter and (d) a second high frequency switch, (2) a multi-band filter module consisting of (a) a first phase device, (b) a second phase device, (c) a first band pass filter, (d) a second band pass filter, (e) a third phase device and (f) a fourth phase device, and (3) a multi-band filter module consisting of (a) a first phase device, (b) a second phase device, (c) a first band pass filter, (d) a second band pass filter and (e) a first high frequency switch.

Therefore, a person skilled in the art could have easily conceived of using balanced-unbalanced type filters, each as described in document 1, as the band pass filters also in the multi-band filter module described in document 2 or 4.

Meanwhile, when balanced-unbalanced type filters are used, it is considered to be obvious from document 3 that the number of high frequency switches is increased. Furthermore, it is also considered to be obvious that the number of phase devices is increased.

The subject matter of claim 3 does not appear to involve an inventive step in view of documents 1, 4 and 5 cited in the ISR.

Document 5 describes a multi-band filter module comprising a high frequency switch, a first band pass filter and a second band pass filter.

Furthermore, document 4 describes that the outputs from the first band pass filter and the second band pass filter are combined through respectively the first phase device and the second phase device.

Therefore, a person skilled in the art could have easily conceived of (1) using balanced-unbalanced type filters, each as described in document 1, and (2) arranging the outputs from the first band pass filter and the second band pass filter as described in document 4, also in the multi-band filter module described in document 5.

Meanwhile, it is also considered to be obvious to increase the number of phase devices, since balanced-unbalanced type filters are used.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: V

The subject matters of claims 5-8 do not appear to involve an inventive step in view of documents 1-8 cited in the ISR.

Document 6 describes changing the impedance in a balanced-unbalanced type circuit.

Documents 7-9 respectively describe a SAW filter or FBAR filter.

Document 10 describes (1) mounting on a laminate and (2) using a multi-band cellular phone.